

What is Claimed:

- 1 1. An introducer for deployment of an endoluminal device in a distal
2 location from a proximal location, the introducer comprising:
3 a retrograde portion;
4 an antegrade portion, axially moveable relative to the retrograde portion,
5 comprising a distal tip and an antegrade sheath attached proximally to the distal tip;
6 a shaft attached to the distal tip and extending concentrically through a central
7 lumen defined by the antegrade portion and retrograde portion;
8 an endoluminal device mounted concentrically over the shaft in the central
9 lumen and having a distal end contained by the antegrade portion and a proximal end
10 contained by the retrograde portion; and
11 an inflatable balloon mounted radially outside the retrograde portion.
- 1 2. The introducer of claim 1, wherein the retrograde portion comprises
2 bilumen tubing having an external wall, an internal wall that defines the central lumen
3 radially inward of the internal wall, and an annular lumen defined between the external wall
4 and the internal wall, the annular lumen in fluid communication with the balloon, the balloon
5 located radially outward of the external wall at or near a distal end of the retrograde portion.
- 1 3. The introducer of claim 1, wherein the endoluminal device has a length
2 and the balloon has a length that is less than the endoluminal device length.
- 1 4. The introducer of claim 1, wherein the retrograde sheath and the
2 antegrade portion axially abut one another.
- 1 5. The introducer of claim 1, wherein the retrograde portion extends over
2 a longer portion of the endoluminal device than the antegrade sheath.
- 1 6. The introducer of claim 1, wherein the antegrade sheath extends over
2 a longer portion of the endoluminal device than the retrograde portion.

1 7. The introducer of claim 1, wherein the anterograde sheath and the
2 retrograde portion extend over essentially equal lengths of the endoluminal device.

1 8. The introducer of claim 1, wherein the shaft comprises one or more
2 radiopaque markers.

1 9. The introducer of claim 1 further comprising at least a first radiopaque
2 marker that marks the proximal end of the device.

1 10. The introducer of claim 9 further comprising a second radiopaque
2 marker that marks the distal end of the device.

1 11. The introducer of claim 1, wherein the endoluminal device comprises a
2 stent, graft, or a combination thereof.

1 12. The introducer of claim 1, wherein the endoluminal device comprises a
2 vena cava filter.

1 13. The introducer of claim 1, wherein the endoluminal device comprises a
2 stent-graft for repair of an abdominal aortic aneurysm.

1 14. The introducer of claim 1, wherein the endoluminal device is self-
2 expanding.

1 15. The introducer of claim 1, wherein the endoluminal device is adapted
2 for deployment in a location having a sensitive area located distally of the deployment
3 location, the anterograde portion having a length sufficiently short to prevent intrusion of the
4 anterograde portion into the sensitive area.

1 16. An introducer for deployment of a self-expanding endoluminal device
2 in a distal location from a proximal location, the introducer comprising:

3 a retrograde portion having a distal end and comprising coaxial bilumen tubing
4 having an external wall, an internal wall, a balloon located radially outward of the external
5 wall at or near the retrograde portion distal end for anchoring the endoluminal device during
6 deployment of the device from the device proximal end to the device distal end, a retrograde
7 central lumen defined radially inward of the internal wall, and an annular lumen defined

8 between the external wall and the internal wall, the annular lumen in fluid communication
9 with the balloon;

10 an anterograde portion comprising a distal tip, an anterograde sheath attached
11 proximally to the distal tip, and an anterograde central lumen defined radially inward of the
12 anterograde sheath;

13 an endoluminal device mounted concentrically over the shaft in the retrograde
14 and anterograde central lumens, the device distal end contained by the anterograde portion
15 and the device proximal end contained by the retrograde portion, the retrograde portion
16 having a length sufficient to be engaged by the balloon against the lumen wall; and

17 a shaft attached to the distal tip and extending concentrically through the
18 anterograde and retrograde central lumens, the shaft comprising at least a first radiopaque
19 marker that marks the proximal end of the endoluminal device and adapted for moving the
20 anterograde portion relative to the retrograde portion.

1 17. A method for deployment of an endoluminal device in a distal location
2 in a body lumen from a proximal location, the method comprising the steps of:

3 (a) inserting an introducer into the body lumen having a lumen wall, the
4 introducer comprising a retrograde portion, an anterograde portion comprising a distal tip and
5 an anterograde sheath attached proximally to the distal tip, a shaft attached to the distal tip
6 and extending concentrically through a central lumen defined by the anterograde portion and
7 retrograde portion, an endoluminal device mounted concentrically over the shaft in the
8 central lumen and having a distal end contained by the anterograde portion and a proximal
9 end contained by the retrograde portion, and an inflatable balloon mounted radially outside
10 the retrograde portion for anchoring the endoluminal device during deployment of the device;

11 (b) aligning the proximal end of the device in a deployment location;

12 (c) retracting the retrograde portion to allow a proximal portion including
13 the proximal end of the endoluminal device to deploy;

14 (d) advancing the retrograde portion so that the balloon is aligned axially
15 within the proximal portion of the device;

16 (e) inflating the balloon to compress the proximal portion of the
17 endoluminal device against the lumen wall; and

18 (f) extending the shaft to distally advance the antegrade sheath to deploy
19 a remaining portion of the endoluminal device.

1 18. The method of claim 17, wherein the introducer shaft comprises at
2 least one radiopaque marker marking the proximal end of the device and in which step (b)
3 comprises determining the alignment of the proximal end in the deployment location using
4 fluoroscopy to visualize the radiopaque marker.

1 19. The method of claim 17, further comprising the steps of:

2 (g) deflating the balloon; and

3 (h) removing the introducer from the body lumen.

1 20. The method of claim 19, further comprising, prior to step (h), using
2 the balloon to model the endoluminal device against the body lumen.

1 21. The method of claim 17, wherein the endoluminal device is adapted for
2 deployment in a location having a sensitive area located distally of the deployment location,
3 the method comprising in step (f) advancing the shaft a distance insufficient for the
4 antegrade portion to intrude into the sensitive area.

1 22. The method of claim 21, wherein the endoluminal device comprises a
2 stent, graft, or combination thereof for deployment in an aorta, and the sensitive area
3 comprises a heart.